

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

---

In re Patent Application of:  
William W. King

Application No.: 10/649,025

Confirmation No.: 5132

Filed: August 27, 2003

Art Unit: 1794

For: CORROSION-RESISTANT COATING  
COMPOSITION FOR STEEL, A COATED  
STEEL PRODUCT, AND A STEEL COATING  
PROCESS

---

Examiner: J. J. Zimmerman

**REPLY BRIEF**

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

As required under § 37 C.F.R. 41.41, this reply brief is filed within two months of the Examiner's Answer.

**RESPONSE TO EXAMINER'S ARGUMENTS**

**A Patentable Distinction Does Exist Between Instant Application and Okumura**

Examiner states that "Okumura shows no example comparing an iron-aluminum intermetallic layer of 1 micron with an iron-aluminum intermetallic layer of just over 1 micron (the beginning of the appellants planned range) (p. 8, Examiner's Answer). As such, the Examiner concludes that "[i]t is not clear in what manner appellant believes that Okumura has satisfied appellant's burden of establishing a patentable distinction between Komura claimed

range in point of 1 micron and appellants claimed range in point of greater than 1 micron (*id.*) However, the Examiner correctly states thereafter that “Okumura clearly shows comparative examples having intermetallic layers of 1.5 microns....” (*id.*). Therefore, applicant submits that there *is* a clear example by Okumura of a comparison between an iron-aluminum intermetallic layer of 1 micron with an iron-aluminum intermetallic layer of just over 1 micron.

Looking at Table 2 of Okumura, Application Example No. 4 had an iron-aluminum intermetallic layer of 1 micron that exhibited small cracks at a bent section, whereas Comparative Example No. 9 had an intermetallic layer of 1.5 microns that exhibited medium size cracks at a bent section. Thus given Okumura’s teaching away from a corrosion resistant iron-aluminum intermetallic layer having a thickness of greater than 1 micron and appellant’s constructive reduction to practice of an iron-aluminum intermetallic layer having a thickness of greater than 1 micron that “inhibit[s] steel electrochemical oxidation by gaseous oxidants” (Original Application, p. 7, lines 2-3), it is submitted a patentable distinction has been established between Okumura’s claimed range endpoint of 1 micron and applicant’s claim range endpoint of greater than 1 micron.

Assuming for arguments sake that it is found that a patentable distinction has not been established between Okumura’s claimed range endpoint of 1 micron and applicant’s claim range endpoint of greater than 1 micron, Appellant submits that claim 10 *clearly* establishes a patentable distinction between Okumura’s claimed range endpoint of 1 micron and applicant’s claimed range endpoint of greater than 2 microns.

### **Unexpected Results Have Been Shown By Applicant**

[I think this argument is weak and could be left out] Examiner has also stated that “appellant’s disclosure and documents in [the] application file . . . show no factual results

establishing *unexpected* results or *criticality* of the claimed intermetallic thickness range” (Examiner’s Answer, p. 9, middle of page). However, Appellant’s application is a constructive reduction to practice of the invention and a “corrosion resistance steel that inhibits steel electrochemical oxidation by gases oxidants” has been provided (Original Application, p.7, lines 2-3). As such, applicant’s disclosure is not a “mere discussion of unexpected results” *and* is in fact completely *unexpected* in light of Okumura to one skilled on the art.

**Okumura Would Not Be Expected to Produce An Intermetallic Layer With A Composition Within The Range of Claims 9 and 32**

Examiner has also claimed that because Okumura’s bath content for aluminum (Al) and zinc (Zn) overlaps the content of the bath disclosed by appellant to produce appellant’s invention, that barring evidence to the contrary, the bath of Okumura would be expected to produce an iron-aluminum intermetallic composition that would fall within the claimed range. In particular, Claims 9 and 32 claim an iron-aluminum intermetallic having a composition between 18 to 49 weight % (wt%) Al (not 18 to 56 wt% Al as stated by the Examiner -- see Claims 9 and 32 versus Examiner’s Answer, Page 10, 3<sup>rd</sup> line from bottom of page). However, a comparison of the bath compositions for the instant application and the bath compositions for Okumura clearly show that in fact, there is no overlap.

The first bath of Okumura has a composition of Zn with 0.1-20 wt% Al (Okumura translation, p. 6, paragraph 12). In contrast, the first bath of the instant application has a composition of Zn with 0.01-19 % metal boride, metal carbide or silicone carbide and *no* aluminum (Original Specification, p. 8, lines 5-15). In addition, the second bath of Okumura is disclosed to have Zn with 20-80 wt% Al (Okumura translation, p. 7, paragraph 14), whereas the second bath of the instant application used to produce the resulting iron-aluminum intermetallic containing 18-49 wt% Al is a bath containing Zn with 10-12 wt% Al and 0.5-7 wt% magnesium

(Original Specification, p. 9, lines 2-17). A summary of these compositions are shown in Table 1 below. It is clear that the Al bath compositions of Okumura and the instant application do not overlap.

**Table 1**

<b>Bath</b>	<b>Okumura Bath Al Content (wt%)</b>	<b>Instant Application Bath Al Content (wt%)</b>
1 <sup>st</sup> Bath	0.1-20	0
2 <sup>nd</sup> Bath	20-80	10-12

\* Composition used to produce iron-aluminum intermetallic layer of claims 9 and 32 as taught by the specification (Original Specification, p. 9, lines 2-17)

In addition, it is important to note that the instant application produces the iron-aluminum intermetallic layer having 18-49 wt% Al while using a second bath with only 10-12 wt% Al. Stated differently, the Al content of the iron-aluminum intermetallic layer is outside the range of the Al content in the bath. Thus, to simply state that a bath having 20-80 wt% Al provides an Al content between 18-49 wt% Al in the iron-aluminum intermetallic layer, is a “mere conclusively statement” and does not establish a *prima facie* case of obviousness.

#### **Examiner Has Failed to Provide Resolution of Ordinary Skill in the Art**

As stated in Appellant’s Appeal Brief filed on November 30, 2007, the Examiner has failed to provide a resolution of the level of ordinary skill in the art as *required* by the factual inquiry associated with determining obviousness under 35 U.S.C. §103 and reiterated by the Supreme Court in *KSR International Co. v. Teleflex, Inc.* (Fed. Register Volume 72(195) 57526-57535). As such, Appellant submits that no *prima facie* case of obviousness has been established and that the rejection of pending claims under 35 U.S.C. §103(a) is improper.

The Director is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 07-1180.

May 28, 2008

Respectfully submitted,  
Electronic Signature: /Avery N. Goldstein/

Avery N. Goldstein, Ph.D.  
Registration No.: 39,204  
GIFFORD, KRASS, SPRINKLE, ANDERSON  
& CITKOWSKI, P.C.  
2701 Troy Center Drive, Suite 330  
Post Office Box 7021  
(248) 647-6000 (Phone)  
(248) 647-5210 (Fax)  
Attorney for Applicant